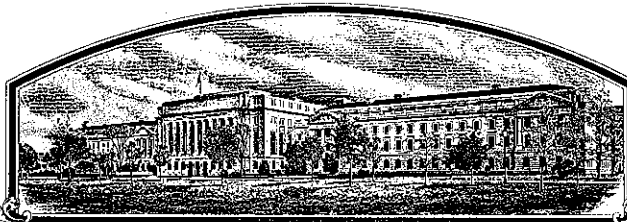


No.

9000144



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Asgrow Seed Company**

Whereas, THERE HAS BEEN PRESENTED TO THE  
**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'A2427'

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington, D.C.

this 31st day of March in  
the year of our Lord one thousand nine  
hundred and ninety-two.

Attest

*Kenneth H. Evans*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Edward M. Dignan*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Asgrow Seed Company</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. <b>XP2427</b>	3. VARIETY NAME <b>A2427</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>Gull Road, Bldg. 190 Kalamazoo, MI 49001</b>		5. PHONE (include area code) <b>(616) 384-2352</b>	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER <b>9000144</b> F I L I N G Date <b>Apr. 12, 1990</b> Time <input type="checkbox"/> A.M. <input type="checkbox"/> P.M. F E E S Filing and Examination Fee. <b>\$2150.00</b> Date <b>Apr. 9, 1990</b> R E C E I V E D Certificate Fee: <b>\$250.-</b> Date <b>Mar. 5, 1992</b>
6. GENUS AND SPECIES NAME <b>Glycine max.</b>	7. FAMILY NAME (Botanical) <b>Leguminosae</b>		
8. CROP KIND NAME (Common Name) <b>Soybean</b>	9. DATE OF DETERMINATION <b>September, 1985</b>		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Delaware</b>	12. DATE OF INCORPORATION <b>March 22, 1968</b>		
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS <b>Steve Hawkins 9638-190-23 Asgrow Seed Company Gull Road, Bldg. 190 Kalamazoo, MI 49001</b>			
			PHONE (include area code): <b>(616) 384-2352</b>

## 14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a. ☒ Exhibit A, Origin and Breeding History of the Variety.  
b. ☒ Exhibit B, Novelty Statement.  
c. ☒ Exhibit C, Objective Description of Variety.  
d. ☒ Exhibit D, Additional Description of Variety.  
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.  
f. ☐ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office \_\_\_\_\_  
g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)  
☐ YES (If "YES," answer items 16 and 17 below) ☒ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?  
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED


18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: \_\_\_\_\_)  
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?  
☐ YES (If "YES," give names of countries and dates)  
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] 	CAPACITY OR TITLE <b>SOYBEAN PRODUCT MANAGER</b>	DATE <b>3/27/90</b>
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE

Asgrow Seed Company  
Plant Variety Protection Application - Soybean, A2427  
March 6, 1990

## EXHIBIT A

## Origin and Breeding History of A2427

- 1983 Cross was made -- J831259.  
Parentage: A2943/2/Vickery//Corsoy///PI88.788
- 1983-84 F1 and F2 generations advanced at Isabela, Puerto Rico.  
(winter)
- 1984 F3 generations grown at Ames, Iowa. Two-hundred plants were selected from the bulk population and threshed individually.
- 1985 Progeny row J831259 J85-17761 was selected for its uniformity and standability.  
It was in September, 1985 that J831259 J85-17761 was determined to be a stable and unique line.
- 1986 J831259 J85-17761 was entered in yield tests and grown at two Iowa locations. It produced uniform stands and was selected for its yield and standability.
- 1987 J831259 J85-17761 was entered in yield tests and grown at nine locations through out the midwest. It produced uniform stands and was selected for its yield and standability.  
J831259 J85-17761 was assigned the maturity designation X2427.  
Resistance to Race 3 of soybean cyst nematode was determined.
- 1988 X2427 was entered in yield tests which were grown at twenty locations through out the midwest. It produced uniform stands and was selected for its yield and standability.  
X2427 was assigned the maturity designation XP2427.  
Breeder seed was produced.

## Exhibit A continued ...

1989        XP2427 was nominated for release and full production and assigned the designation of A2427.

Foundation seed of A2427 was produced near Perry, Iowa.

A2427 is uniform and stable within commercially acceptable limits based on trial observations since its development in 1985. As with other soybean varieties, variants can occur for almost any characteristic during the course of repeated sexual reproduction.

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## EXHIBIT B

## Novelty Statement Concerning A2427 Soybean

To our knowledge the soybean varieties that most closely resemble A2427 are: A2943, AP2190, AP2324, BSR101, B242, and CX265

Characteristics which differentiate A2427 include, but are not necessarily restricted to, the following:

1. Reaction to race 1 of Phytophthora megasperma Drechs. f. sp. glycinea

A2427	=	Resistant
A2943	=	Resistant
AP2190	=	Resistant
AP2324	=	Susceptible
BSR101	=	Resistant
CX265	=	Susceptible

2. Peroxidase Activity

A2427	=	High
A2943	=	High
AP2190	=	High
AP2324	=	Low
BSR101	=	Low
B242	=	Low

3. Reaction to race 3 of Heterodera glycines Ichinohe

A2427	=	Resistant
A2943	=	Susceptible
AP2190	=	Susceptible

OBJECTIVE DESCRIPTION OF VARIETY  
 SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Asgrow Seed Company	TEMPORARY DESIGNATION XP2427	VARIETY NAME A2427
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) Gull Road, Bldg. 190 Kalamazoo, MI 49001		FOR OFFICIAL USE ONLY PVPO NUMBER 9000144

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
 4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow      2 = Green      3 = Brown      4 = Black      5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')      2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff      2 = Yellow      3 = Brown      4 = Gray      5 = Imperfect Black      6 = Black      7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow      2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low      2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)      2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')      2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')  
 3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')  
 4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate      2 = Oval      3 = Ovate      4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 2

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 2

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 1

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☐ 0 ☐ 51 = 000  
9 = VI2 = 00  
10 = VII3 = 0  
11 = VIII4 = I  
12 = IX5 = II  
13 = X

6 = III

7 = IV

8 = V

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★ ☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)★ ☐ 0Bacterial Blight (*Pseudomonas glycinea*)★ ☐ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★ ☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojae*)★ ☐ 0

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

Race 4

☐ 0

Race 5

☐ 0

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 1Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microsphaera diffusa*)★ ☐ 1Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 2 Race 1 ☐ 2 Race 2 ☐ 1 Race 3 ☐ 1 Race 4 ☐ 1 Race 5 ☐ 0 Race 6 ☐ 1 Race 7
- ☐ 1 Race 8 ☐ 2 Race 9 ☐ 2 Other (Specify) 10, 11, 12, 13, 16, 17, 19, 20

## VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 2 Race 3 ☐ 0 Race 4 ☐ 0 Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ 0 OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 1 Iron Chlorosis on Calcareous Soil
- ☐ 0 Other (Specify) \_\_\_\_\_

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ 0 Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	A2943	Seed Coat Luster	A2943
Leaf Shape	BSR101	Seed Size	A2943
Leaf Color	A2943	Seed Shape	A2943
Leaf Size	BSR101	Seedling Pigmentation	A2943



## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
A2427 Submitted	131	1.5	104	8.4	13.7	45.3	20.8	14.0	
BSR101 Name of Similar Variety	129	2.0	109	9.6	14.6	40.3	22.2	16.3	

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

Asgrow Seed Company  
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EXHIBIT D

Additional Description of the Variety

A2427 is an outstanding mid Group II cultivar that possesses resistance to race 3 of the soybean cyst nematode. It combines excellent standability and high yield potential on both cyst infested and non-infested soil providing farmers with a superior alternative to any widely grown mid Group II cultivars.

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EXHIBIT E

STATEMENT OF THE BASIS OF APPLICANTS'S OWNERSHIP

A2427 was originated and developed by James E. Miller, Ph.D., an Asgrow plant breeder. By agreement between employee and Asgrow Seed Company, all rights to any invention, discovery, or development made by an employee are assigned to the Company. No rights to such invention, discovery, or development are retained by the employee.